LAB 26 - Reference Files for Plan Sheets

Chapter Objectives:

- Create plan sheets referencing in files
- Clipping reference files
- Rotate reference files

Two approaches can be used to assemble plan sheets. In the first part of this chapter the 'manual' method of attaching reference files will be used. This is followed by using the InRoads sheet generation command known as the Plan and Profile Generator.

The contents of the reference files are not important to this process and may not accurately reflect the contents and layout of a final plan sheet.

This lab will relocate the border sheet to align with the design graphics.

Moving border sheets to align with design information

In the previous chapter graphics were moved to align with the title sheet. This may suffice for information that is not coordinate dependent but is not an acceptable practice in the generation of engineering drawings. The following workflow will result in a product that conforms to CDOT standards.

This first lab uses the 'manual' method for designing a plan set layout and assembling the plan sheets. A following lab will use the InRoads Plan and Profile generator command to 'automate' the process.

The process for this lab is:

- Define the plan sheet limits, rotation, and size(s)
- Create a sheet file containing a border for each plan sheet
- Attach the appropriate reference files
- Rotate sheets normal to the MicroStation view for ease of use
- Define reference file clip boundaries

📕 MicroStation	Manager - C:\Pro	ojects\12345\ROW_Survey\Drawing	js\Referei	nce_Files\		.
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Naturala	File name:	12345ROW_Model.dgn		•	Open	User: CDOT User 💌
INECMORE	Files of type:	All Files (*.*)		•	Cancel	Project: 12345
		Open as read-only		(Options	Interface: CDOT 🔹
						h.

1. Open the MicroStation file 12345ROW_Model.dgn

2. Select the MicroStation Fit command to expand the view to show all graphics.



 Select Element > Cells to verify the *ROW* cell library is attached. If not, select File > Attach from the Cell Library dialog and attach ROW.cel from the cell library list.

Use Shared Cells	play All Cells In Path	<u>D</u> isplay: Wireframe ▼
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ROW_XSEC-Utility-Easement-ex	CDOT XSEC Utility Easement Existing	
CW_XSEC-Utility-Easement-pro	CDOT XSEC Utility Easement Proposed	
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SHEET BOW County recording	County recording information for title shee	· · · ·
SHEET Region-Dave-Mantych	ROW Sheet Regional Dave Mantych	
HEET Region-Dave-Stewart	ROW Sheet Regional Dave Stewart	
HEET_Region-Jack-Messenger	ROW Sheet Regional Jack Messenger	
•	•	
Active Cells		
Placement RWPL Cuts	Point Element	Edit Delete
Teminator NONE	Pattern NONE	Create

- 4. **<D><D>** rapidly on the cell name *RWPL Cuts* to identify this as the 'Placement' cell and activate the place cell command.
- 5. In the **Place Active Cell** dialog, set the X and Y scale to **300**, and **Active Angle** to **0**. A Z scale of **1.0** should be used. An X and Y scale of 300 is used because this reflects the scale the survey control diagram sheets will be developed at.

📕 Place Activ	📕 Place Active Cell			
Active Cell:	RWPL Cuts	٩,		
Active Angle:	0°0'0.00''			
X Scale:	300.000000			
<u>Y</u> Scale:	300.000000			
Z Scale:	1.000000			
		•		



SHEET XXXX ROTATION XX-XX-XX SCALE 1"=XXX

About this cell:

This cell was created to facilitate the planning of eventual sheets. It contains text characters that can be edited to indicate sheet name, rotation, & scale. The outer line-work depicts the maximum display limits for graphics as it relates to the border sheet. The inside shape reflects $\frac{1}{2}$ inch inside this maximum limit. It also reflects the maximum limits that would be displayed if the sheet was created with the Plan and Profile generator command within InRoads. The 'dots' in the vertical lines represent $\frac{1}{2}$ of the sheet height and assist in centering planimetrics information on the sheet. All information is written to the MicroStation level **DRAFT_INFO_No-Plot**.

6. **<D>** to place the cell in the MicroStation file, move as necessary. These graphics will define the limits for the plan sheet when referenced back to the border.



The above graphics approximately represent the required limits for the first sheet. Position the sheet limit cell as you see fit.

7. Use the **Edit Text** command to complete the text at the bottom of the sheet. This will assist in managing the sheets as reference files.





8. **<D>** on the text at the bottom of the layout sheet.

 Replace the appropriate sheet information in the *Text Editor* as follows: *LSCD03C 00-00-00 1"=300'*

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- 10. **<D>** anywhere to accept the change.
- 11. Use the MicroStation **Copy** command to duplicate the graphics for the second sheet.

12. Use the MicroStation **Rotate** command to align the graphics for the second sheet (345 degrees, -15 also works).



Replace the appropriate sheet information at the bottom of the copied sheet.

13. In the Text Editor enter: *345-00-00*



14. Continue planning the sheet layout for the remainder of the project.



Complete a few sheets to understand the concept. It is not the intention of this lab to complete the layout for the entire project.



Note: Sheets at other scales could also be laid-out at this time. For instance, Monumentation or right of way plan sheets at a scale of 1"=100'

A major benefit of this workflow is that the eventual limits and orientation of sheets are determined early in the process. These sheet limits can be used to identify proper positioning, size, and rotation of text and tables. This is in addition to acting as a guide for attaching the planimetrics to the border sheets.

Assembling the plan sheets

15. *Open* the MicroStation fileROW_Survey\Drawings\ 12345SURV_PlanLSCD3B.dgn

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	312345ROW_T	abProp03.dgn	40 KB			
	312345ROW_T	abProp04.dgn	39 KB			
Desktop	312345ROW_T	abProp##.dgn	35 KB			
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	Files of type:	CAD Files (*.dgn;*.dwg;*.dxf)		•	Cancel	
		Open as read-only			Options	

This is a file that you will be using to assemble drawing 4 of this plan subset. This will be accomplished by aligning a cell representing the border with the planimetrics. The current graphics will not be used.

16. *Delete* the border sheet graphics contained in the MicroStation file.

This sheet will be developed at a scale of 1:300. The MicroStation model properties require modification so that the annotation scale matches the plot scale.

17. Open the Models dialog.



18. **<D>** the **Edit Model Properties** icon.

Models	
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Type 2D/3D Name ^	Description
CDOT Default	Master Model

- 19. **<D>** the drop-down list and select *CUSTOM*, then input *300:1*
- 20. Set the *Line Style Scale* to Annotation Scale.

Type:	Design
<u>Name:</u>	CDOT Default
Description:	Master Model
<u>R</u> ef Logical:	
<u>A</u>	CUSTOM - 300.000(: 1.00000
Line Style Scale:	Annotation Scale
I Properties	Cell Type: Graphic

- 21. **<D> OK**
- 22. **<D> Yes** in the Alert dialog.



- 23. Attach the file used in the geometry training portion of this course from the ...\ROW_Survey\Drawings\Reference_Files folder;
 - ◆ 12345ROW_Model.dgn
- 24. Select File > Reference
- 25. From the **References** menu select **Tools > Attach**

Look in:	Beference_f	Files 🗸	G 🤌	⊳ 🖽	🚰 🖹	3D - V8 DGN
Ca.	Name	*	Size			
Recent Places	12345ROW	Model.dgn		670 KB		
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	12345ROW	_Model##.dgn		698 KB		
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	File name:	12345ROW_Model.dgn		•	Open	
	Files of type:	CAD Files (*.dgn;*.dwg;*.dvf)		•	Cancel	
	•	Save Relative Path			Options	

26. Highlight the file 12345ROW_Model.dgn and **<D> Open**.

The Reference Attachment Settings dialog appears for the 12345ROW_Model.dgn file.

27. Enter a Logical Name and Description as shown.

28. **<D> OK**

📕 Reference Attachme	ent Settings for 12345ROW_Model.dgn	23
<u>Fi</u> le Name: 1234 Full Path:\Dr <u>M</u> odel: CDO1	5ROW_Model.dgn awings\Reference_Files\12345ROW_Model.dgn [Default ~	
Logical Name: ROW Description: new l	r ROW intersection	
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Named Group;		
Revision:		
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Nested Attachments:	No Nesting Depth: 1	
Display Overrides:	Allow	
New Level Display:	Use MS_REF_NEWLEVELDI*	
Global LineStyle Scale:	Master 💌	
	<u>QK</u> Cancel	

The file is now attached.

🚜 References (1 of 1 unique, 1 displayed)	- • •
Tools Settings	
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New Level Display: Config Variable 💌	

- 29. Close the References dialog.
- 30. Select the MicroStation Fit command.



31. Window or Zoom into the beginning of the project.

Note the graphics placed previously to indicate sheet limits.

32. Place the *cell* called ROW Plan border **sheet** from the CDOT Menu.



33. <D> Settings to and change the Active Scale to 300 and <D> Apply

🟪 Active Setti	ngs	- • •
Active Scale:	300.00	Apply
Active Angle:	0.00	Close

34. Place the sheet border cell so the lower-left corner coincides with the corner indicated on the sheet limits cell placed previously.



In the Reference dialog, identify the reference file and select Tools > Clip Boundary

Attach		🖻 🗗 🎦	🚹 🐔 🛱 🔛 🔘 🗙	Hilte Mode:	Boundaries	•		
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<u>S</u> cale								
<u>R</u> otate								
Merge Into Master								
Make Direct Attachment								
Mirror Horizontal								
Mirror Vertical								
Clip Boundary								
Clip Mask								

35. In the Set Reference Clip Boundary dialog, select the *Element* Method.

🕌 Set Re	ference Clip Boundary	
Method:	Element -	
	Discard Existing Clip Masks	
	V Use References Dialog List	

36. **<D>** on the shape inset $\frac{1}{2}$ inch from the border.



37. **<D>** anywhere to accept the clip.

The plan sheet display limits are now constrained to a desirable limit.

38. *Turn off* level *DRAFT_INFO_No-Plot* in the reference file *12345ROW_Model.dgn* to turn off the sheet lay-outs (Select Settings > Level Display).

✓ Level Display ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ Nove, 12345SURV_PlanLSCD38.dgn ✓ ROW, 12345ROW_Model.dg	• • 🛃 •	
Name	Logical	Used 🔻
Default		
DES TEMP InBoards Misc		•
DRAFT INFO No-Plot		
DRAFT LC-Center WT-3		•
ROW EASEMENT Temporary-Li.		•
ROW LINE Existing		•
ROW_LINE_Existing-Calc-Pts		•
ROW_LINE_Proposed		•
ROW_LINE_Proposed-Text		•
ROW_MONUMENT_Section-Lin		•
ROW_NO_Plot-proposed		•
ROW_OWNRSHIP_Property-Lin		•
SURV_MONUMENT_GLO-Lot-Li		•



Make appropriate edits to the title block and add any sheet specific information necessary.

Using the tentative (snap) button <T> to query coordinate values that correctly reflect project coordinates. Additionally an InRoads command, such as tracking, will verify the graphics are coordinately correct.

Once the first sheet is done, the second sheet is much easier. It is easier because the sheet file can be duplicated with the reference files already attached. Moving the border sheet and redefining the clipping boundaries will define subsequent sheets.

Save in:	Drawings		•	G 🦻	📂 🛄 👻	۲	3D - V8 DGN
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	12345SURV	PlanLSCD03.dgn		37 KB			
	12345SURV_PlanLSCD3B.dgn			69 KB			
	12345SURV_PlanLSCD##.dgn			33 KB			
	12345SURV_PlanPCD##.dgn			33 KB			
	312345SURV	PlanSheetLSCD3D.dgn		69 KB			
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	File name:	12345ROWSURVPlanSheetL	SCD3	3D.dgn	•	Save	
	Save as type:	MicroStation V8 DGN Files (*	dan)		•	Cancel	

39. Select File > Save as, input name *12345ROWSURVPLIanSheetLSCD3D.dgn*

- 40. **<D> Save**.
 - **Note:** The Save As command will automatically save the current drawing to the hard drive, then copy and rename to the specified file name and open the new drawing.
- 41. Place a MicroStation *fence* over an area that would encompass the next sheet in the set.



- 42. In the **References** dialog, identify the **12345ROW_Model.dgn** file and Select **Tools** > **Clip Boundary**
- 43. In the Set Reference Clip Boundary dialog, select the Fence Method.

Set R Method	ference Clip Boundary	X
Method	Active Fence	

44. **<D>** on the MicroStation screen to accept the new clip boundary.



45. Turn On the level *DRAFT_INFO_No-Plot* in the reference file *12345ROW_Model.dgn* to turn the sheet lay-outs back on.



46. Use the MicroStation **Move** command to relocate the border sheet. Also **Rotate** the border sheet to align with the predefined sheet limits.

Rotate the MicroStation view so that the sheet is normal to the view.

- 47. Key-in *rv=0,0,15* (rotate view = value) for this 3D file *rv=15* if in a *2D* file.
- 48. **<D>** on the MicroStation screen to initialize the rotation.

Note: The above key-ins vary based on the dimension of the MicroStation file, 2D or 3D. When working in a 3D file, the key-in is: rv=0,0,15 (rotate view=x-value, y-value, z-value). Rotation is specified in relative to the Z axis as that is the axis perpendicular to the view. Also, rotating a MicroStation view simply rotates the viewing of the graphics. The coordinate system is still relative to the graphics and any coordinate or alignment information extracted will be correct.



Define a reference clip boundary, as you did earlier.

49. In the Reference dialog, identify the reference file and select **Tools > Clip Boundary**

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Clip <u>Boundary</u> Clip Mas <u>k</u>								_

50. In the Set Reference Clip Boundary dialog, select the *Element* Method.



51. **<D>** on the shape inset $\frac{1}{2}$ inch from the border.



- 52. **<D>** anywhere to accept the clip.
- 53. *Update* information in the title block of the sheet as necessary.
- 54. Select File > Save Settings

This same procedure can be repeated to complete the remainder of the sheets.